

REMARKS

Claims 10-57, 62-81, 92-105 109-116, 118-130, 136-156, and 160-227 have been cancelled without prejudice or disclaimer of any subject matter. Claim cancellation should not be construed as a response to a matter relating to patentability. The right to file divisional applications as to the cancelled subject matter is expressly reserved.

As an initial matter, Applicants note that claims 78, 109, 130, 171, 183, 187, 195-196, 200, and 222-229 were not placed in any Group according to the instant Office Action. See ¶3 on pgs. 4-6. Since claims 78, 109, 130, and 171-227 are presently cancelled, Applicants will address the restriction issue as to these claims in a divisional application. As to claims 228-229, Applicants respectfully request that the Office include these claims in the claims of Group I as set forth in the instant Action. Examination of these claims would not pose any undue burden on Office resources. In particular, each of claims 228 and 229 are dependent from claims 1, 2 and 5 which are being examined on the merits.

Claims 1 and 5 have been amended to point out more clearly what was implicit in the claims before. In particular, the claims have been amended to recite a particular coupling element (part b) and spatial relationship (part c) between the coupling element and other elements of claims 1 and 5. Support for the claim amendments can be found throughout the disclosure including the Drawings and claims filed originally.

Particular support for the amendments in part b of claims 1 and 5 can be found at pg. 34, lines 16-31; pg. 36, lines 20-28; pg. 37, lines 23-31; Figures 1 and 2; and pg. 39, lines 4-16. See also pg. 39-40, bridging paragraph and pg. 40, lines 12-19.

Further support for the amendments in part c of claims 1 and 5 can be found at pg. 35, lines 16-22; and Figures 1 and 2 (showing, among other things, a recognition element/probe ligand branched out from the first hybridized duplex).

Particular support for the term «branched out» can be found, for example, in Figures 1 and 2 in which probe ligand 11 (also recognition element 3) is shown as being spaced away from a location inside of the first hybridized duplex at an angle i.e., it is branched out therefrom as a separate branch. Further support can be found throughout the Examples section, especially in Examples 1-20. Numerous affinity probes were made and used in which the probe

ligand/recognition element was branched out from the first hybridized duplex region as a separate branched element of the claimed composition.

Claims 3 and 228 have been amended to improve claim clarity.

Claims 230-235 are new. These claims find ample support in the specification including the Drawings and claims as filed originally. For instance, see pg. 39., lines 4-16 (claims 230, 233), pg. 39, lines 18-26 and Figure 1 (claims 231, 234), pg. 41, lines 26-30 and pg. 42, lines 1-13 (claims 232, 235).

No new matter has been added by virtue of amendments made to the disclosure or claims.

Supplemental Information Disclosure Statement

Applicants submit herewith a supplemental information disclosure statement to bring certain references from the following co-pending applications to the attention of the Examiner: PCT/KR2003/002101 (WO2004/033476) and EP Application No. 03751517.8. Consideration of the IDS at this time is requested.

Claim Rejection under 35 USC §112, second paragraph

Claims 1-9, 58-61, 82-91, 106-108, 117, 131-135, 157-159 were rejected as being indefinite for reciting «optionally» in claims 1 and 5. According to the Office,

it is not clear what limitations presented after the term are required limitations of the probe. Office Action at pg. 8.

Applicants respectfully disagree. Claims 1 and 5 use an alternative format to recite embodiments in which the probe has or does not have at least one detectable label. There is certainly no ambiguity as to which alternatives are covered by the claim since the alternatives (either having or not having the label) are clear, unambiguous and specified by the claim. Accordingly, it is submitted that use of the term «optionally» in claims 1 and 5 is unambiguous and well-within the requirements of 35 USC §112, second paragraph. See also MPEP 2173.05(h).

In view thereof, reconsideration and withdrawal of the rejection are requested.

Claim Rejection under 35 USC §102

Claims 1-9, 58-61, 90-91, 106-108, 117, 131-135, 157-159 stand rejected as being anticipated over U.S. Patent No. 5,925,517 to Tyagi et al. Applicants respectfully disagree.

In formulating the rejection, the Office took the position that the instant specification does not explicitly define an object sequence. See pg. 8. Applicants disagree and refer the Office to pg. 9, lines 6-25 of Applicants' specification, for instance, where the term is defined. Further disclosure relating to object sequences can be found throughout the application including the Drawings. See Figures 1 and 2, for instance and supporting disclosure at pg. 17, lines 14-20.

In formulating the rejection of claims 5, 7, 8 and 9 on pg. 10 of the Action, the Office took the position that the cited portions of the Tyagi patent referred to a probe ligand. Applicants respectfully disagree. The cited portions of the patent (Col. 17, lines 65-68 and Col. 18, lines 1-25) discloses information about label moieties, not a probe ligand.

To the extent the instant claim rejections rely on an alleged lack of an object sequence definition and the Office's reading of Col. 17, lines 65-68 and Col. 18, lines 1-25 of the Tyagi patent, the rejections cannot stand. Reconsideration is respectfully requested.

Claim 1 has been amended to point out more specifically that the recognition element is conjugated to a first object sequence through a *coupling element that is essentially the same size as or is shorter than the size of the target agent*. This element of the claimed probe is not disclosed by the '517 patent as relied on by the Office. Accordingly, and on this ground alone, the rejection should be withdrawn.

Moreover, claim 1 recites that *the recognition element is conjugated through the coupling element to a location inside the first hybridized duplex region of the first object or first complement sequence so that the recognition element is branched out from the first hybridized duplex*. A probe having this spatial relationship between the recognition element, coupling element, first object sequence (or first complement sequence) and first hybridized duplex is not taught by the '517 patent as relied on by the Office. Accordingly, the rejection should be withdrawn.

Claim 5 has been amended along lines of claim 1. The claim now recites an affinity probe which more particularly points out a coupling element that is essentially the same size as or is shorter than the size of the target agent. An affinity probe having this element is not taught by the '517 patent as cited by the Office. Moreover, there is no mention in the '517 patent of an affinity probe having the spatial relationship provided by part c) of the claim.

The claimed invention is distinguishable from the cited patent on further grounds. For example, and referring now to Figures 1 and 2 of the Tyagi patent, sequences 2a and 2b are part of arms 3, 4 and stem duplex 5 i.e., it is a continuous double-stranded nucleic acid sequence having sequences 2a and 3 contained in one continuous single strand and sequences 2b and 4 contained in the other continuous single strand. In contrast, the probe and affinity probe of claims 1 and 5, respectively, are not continuous i.e., they feature a recognition element/probe ligand that is branched away from the first hybridized duplex.

In view thereof, reconsideration and withdrawal of the claim rejections are requested.

Claim Rejection under 35 USC §103

Claims 82-89 stand rejected as being unpatentable over US Pat. No. 5,925,517 to Tyagi et al. in view of Kolesar et al. (US Pat. No. 6,261,781). Applicants respectfully disagree.

The deficiencies of the '517 patent have been discussed above, particularly in view of amended claim 1 (from which claims 82-89 depend). U.S. Pat No. 6,261,781 to Kolesar et al as relied on fails to remedy these deficiencies. In particular, none of the references taken individually or together teach a probe with a coupling element that is essentially the same size or is shorter than the size of the target agent. On this basis alone, the rejection should be withdrawn.

Moreover, there is no specific or implied disclosure in the cited references taken alone or together disclosing a probe with a recognition element conjugated through the coupling element so that the recognition element is branched out from the first hybridized duplex.

In view thereof, reconsideration and withdrawal of the claim rejections are requested.

The Commissioner is authorized to charge JHK Law's Deposit Account No. **502486** for any fees required under 37 CFR §§ 1.16 and 1.17 that are not covered, in whole or in part, by a check enclosed herewith and to credit any overpayment to said Deposit Account No. **502486**.

Respectfully submitted,

JHK Law

Dated: October 27, 2008

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